<div style="text-align: center">**REMARKS/ARGUMENTS**</div>

Claims 1, 4-8, 12, 15-18 and 21-24 are pending in the present application. Claims 1, 12 and 18 were amended, and claims 2, 3, 13, 14, 19 and 20 were newly canceled. Claim 24 was added. Applicants have carefully considered the cited art and the Examiner's comments, and believe the claims patentably distinguish over the cited art and are allowable in their present form. Reconsideration is, accordingly, respectfully requested in view of the above amendments and the following comments.

I.    **Specification**

The Examiner has required that the serial numbers of all related copending applications identified in the specification be provided. In response, missing information has been provided on pages 47 and 48. It is believed that the required application information was previously supplied in the "Cross Reference to Related Applications" section by a Preliminary Amendment filed on July 27, 2004.

II.    **Rejections under 35 U.S.C. § 102 and 35 U.S.C § 103.**

The Examiner has rejected claims 1, 4-8, 12, 15-18 and 21-23 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,782,454 B1 to Damron (hereinafter "Damron"). In addition, the Examiner has rejected claims 2, 13 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Damron in view of Ishimi et al., U.S. Patent No, 5,708,803 (hereinafter "Ishimi"); and has rejected claims 3, 14 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Damron in view of Hooker, U.S. Patent Application Publication No. 2003/0191900 (hereinafter "Hooker"). These rejections are respectfully traversed.

Claim 1 as amended herein is as follows:

> 1.    A method in a data processing system for providing hardware assistance to prefetch data during execution of code by a processor in the data processing system, the method comprising:
> responsive to loading of an instruction in the code into a cache, determining, by a processor unit, whether metadata for a prefetch is present for the instruction, wherein the metadata comprises a prefetch indicator that is associated with the instruction by one of being placed in the instruction or stored in a shadow memory;
> responsive to a determination of the metadata being present for the instruction, determining whether data is to be prefetched, wherein the step of determining whether data is to be prefetched comprises one of determining whether a number of outstanding cache misses is less than a threshold, and determining whether a number of cache lines chosen to be replaced is greater than a threshold; and
> responsive to a determination that data is to be prefetched, prefetching data, from within a data structure using the metadata, into the cache in the processor, wherein the step of prefetching comprises one of: prefetching the data responsive to determining that the number of outstanding cache misses is less than the threshold, and prefetching the data responsive to determining that the number of cache lines chosen to be replaced is greater than the threshold.

Claim 1 has been amended to describe the metadata recited therein with greater specificity; and, in addition, to incorporate subject matter previously recited in claims 2 and 3. In rejecting the claims, the Examiner appears to have interpreted the "termination value" described in Damron as corresponding to the "metadata" recited in claim 1. In order to more clearly distinguish over Damron in this regard, claim 1 has been amended to recite that the metadata comprises a prefetch indicator that is associated with the instruction by one of being placed in the instruction or stored in a shadow memory. This distinguishes the metadata of the claim from the termination value in Damron.

In addition, claim 1 now requires that the step of determining whether data is to be prefetched comprises "one of determining whether a number of outstanding cache misses is less than a threshold, and determining whether a number of cache lines chosen to be replaced is greater than a threshold"; and that the step of prefetching comprises "one of: prefetching the data responsive to determining that the number of outstanding cache misses is less than the threshold, and prefetching the data responsive to determining that the number of cache lines chosen to be replaced is greater than the threshold." Applicants respectfully submit that it would not be obvious to modify Damron in view of either Ishiimi or Hooker in an effort to achieve the invention now recited in claim 1. As indicated above, Damron does not disclose metadata for a prefetch as now claimed, and the termination value that is disclosed in Damron would never be used to prefetch data based on determinations of whether a number of outstanding cache misses is less than a threshold, or a number of cache lines chosen to be replaced is greater than a threshold. In Damron, the termination value is used to determine if certain termination conditions have been satisfied as described, for example, in column 5, lines 27-44 of Damron.

For at least all the above reasons, claim 1 is neither anticipated by Damron nor obvious over Damron in view of Ishimi or Hooker, and patentably distinguishes over the references in its present form.

Claims 4-8 depend from and further restrict claim 1 and also patentably distinguish over the cited art, at least by virtue of their dependency.

Independent claims 12 and 18 have been amended in a similar manner as claim 1, and also patentably distinguish over the cited art for similar reasons as discussed above with respect to claim 1. Claims 15-17 and 21-23 depend from and further restrict one of claims 12 and 18 and also patentably distinguish over the cited art, at least by virtue of their dependency.

New claim 24 recites the invention in substantial detail and also patentably distinguishes over the cited art in its present form.


III.    **Conclusion**

For at least all the above reasons, claims 1, 4-8, 12, 15-18 and 21-24 patentably distinguish over the cited art and are allowable in their present form. This application is, accordingly, believed to be in

condition for allowance, and it is respectfully requested that the Examiner so find and issue a Notice of Allowance in due course.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: <u>June 29, 2007</u>

Respectfully submitted,

/Gerald H. Glanzman/

Gerald H. Glanzman
Reg. No. 25,035
Yee & Associates, P.C.
P.O. Box 802333
Dallas, TX 75380
(972) 385-8777
Attorney for Applicants